

**REQUEST FOR PROPOSAL AND COST QUOTATION  
TECHNICAL SUPPORT FOR LOW LEVEL RADIOLOGICAL WASTE EVALUATION  
VARIOUS BASE REALIGNMENT AND CLOSURE ACTIVITIES**

September 9, 2010

**INTRODUCTION AND OBJECTIVES**

On behalf of the United States Department of the Navy (DON), Battelle is preparing to implement an evaluation of practices currently applied at various Base Realignment and Closure (BRAC) cleanup sites to characterize and dispose of soil/debris containing Radium-226 (Ra-226), and classified as low level radiological waste (LLRW). The primary objectives of this Scope of Work (SOW) include the following:

- Evaluate current practices at BRAC bases, including Hunters Point Shipyard, Treasure Island, and Alameda Point, for identifying and disposing of LLRW;
- Develop recommendations to refine existing practices for identifying LLRW that are sufficiently conservative to ensure LLRW is identified and properly disposed of, but not so conservative that excessive quantities of non-LLRW are disposed of as LLRW;
- Assist Battelle with estimating potential savings to the DON if the recommendations provided in the evaluation are implemented;
- Develop a report that documents the LLRW evaluation and summarizes the conclusions and recommendations.

Battelle will be the primary contact with the DON's project team, which will be managed by the Naval Facilities Engineering Command, Engineering Service Center in Port Hueneme, California with support from the BRAC Program Management Office West and the DON's Radiological Affairs Support Office (RASO).

**BACKGROUND**

The Navy is performing cleanup actions at a variety of BRAC bases that result in the generation and disposal of LLRW. This SOW is focused on evaluating LLRW related to sources of Ra-226, which primarily originate from radioluminescent devices that were historically used at Navy shipyards and air stations. Ra-226 is a gamma emitter and can be detected in the field using a sodium iodide (NaI) detector. Currently, the practices that have been used to screen for and identify LLRW at DON BRAC cleanup sites include a combination of field screening with NaI detectors followed by hotspot remediation, and the collection and analysis of radiological confirmation samples at an offsite, fixed laboratory. The accepted cleanup level for Ra-226 is 1 picoCurie per gram (pCi/g) plus background, with the background estimates being site (or base) specific. Soil or debris with Ra-226 levels above the accepted cleanup level (1pCi/g plus background) is considered LLRW.

Current practices consist of soil and other debris being identified in the field for disposal as LLRW by using NaI field screening devices. Screening results above mean background plus 3 standard deviations (referred to as background plus 3 sigma) of the field screening instrumentation, leads to the immediate segregation of the offending material for disposal as LLRW. This field screening level ensures that LLRW (i.e., soil/debris that

exceeds the cleanup goal of 1 pCi/g plus background) is identified and properly disposed, and not mistakenly classified as non-LLRW. The field screening level is meant to provide assurance that the cleanup goal is not exceeded, and that soil/debris that should be classified as LLRW is classified correctly. The scope of this LLRW evaluation includes the review of historical data to evaluate whether or not a less conservative field screening level could be used that provides assurance that LLRW is classified correctly, while reducing the volume of non-LLRW that is classified as LLRW.

## **PROPOSED SCOPE AND SPECIFIC REQUIREMENTS**

Battelle will coordinate with the DON to request the applicable reports, calculations, laboratory data, field screening data, and cost data for LLRW projects at Hunters Point Shipyard, Treasure Island, and Alameda Point. All of this information will be compiled and shared with the technical project team so it can be used to: 1) review background calculation methodologies; 2) document and understand current field practices used to identify and segregate LLRW from non-LLRW; 3) evaluate the threshold levels being used for NaI detectors in the field to segregate LLRW from non-LLRW, including the methods used to estimate background; and 4) review and compare field screening data collected with NaI detectors to the corresponding laboratory analytical data that is used to ultimately determine whether soil/debris is LLRW or not.

Qualified staff members at Argonne National Laboratory are expected to provide the following technical support to Battelle during the LLRW evaluation requested by the DON:

### **Work Element 2 – Data Review**

- 1) Review all applicable reports, data, background calculations, and information provided by the DON to gain a complete understanding of the current field practices for characterizing and disposing of LLRW at BRAC cleanup sites, and to take the lead on documenting the current field practices under Work Element 4 (see below).
- 2) Prepare for, travel to and from, and participate in a series of technical meetings with the DON in San Diego, California that are assumed to occur over two full days.
- 3) Take the lead on identifying recommendations to adjust the current practices such that the quantity of non-LLRW that is disposed of as LLRW is reduced, while soil/debris that exceeds the LLRW cleanup level of 1pCi/g plus background is identified and disposed of correctly.
- 4) Evaluate whether or not a less conservative field screening level could be used that provides assurance that LLRW is classified correctly, while reducing the volume of non-LLRW that is classified as LLRW. If a different screening level is recommended, the technical support subcontractor should consider the potential for regulatory agency (and other project stakeholder) acceptance given their participation in the project planning process, and their concurrence on past planning documents.

### **Work Element 3 – Cost Analysis**

- 1) Assist Battelle with determining the potential cost savings based on implementation of the recommendations to adjust the current practices identified under Work Element 2.

### **Work Element 4 - Reporting**

- 1) Take the lead on developing the technical content of a draft and final report that documents the evaluation that is completed as part of the project, and summarizes the conclusions and recommendations. The conclusions and recommendations of the report are to be fully described, and supported by sound technical reasoning presented in other portions of the document. One of the primary expectations is that the recommendations, if implemented, will lead to an improved LLRW characterization/disposal process that can be measured as cost avoidance, reduced cleanup times, acceptance by regulatory agencies (and other project stakeholders), and/or other tangible or intangible benefits. The report needs to be clearly organized and well written in a manner that can be

understood by the general public. The draft report will be issued to the Navy for review, after which the Navy will issue review comments.

- 2) Assist with addressing Navy review comments on the draft report and development of the final report.

The following requirements apply to the scope of work:

- The technical support subcontractor will provide all equipment, supplies, and personnel that are needed to perform the work
- All personnel provided by the technical support subcontractor will be properly trained and qualified to perform the work

### **PROPOSED SCHEDULE/SUBMITTALS**

A proposal and cost quotation for the work identified in the PROPOSED SCOPE & SPECIFIC REQUIREMENTS section of this Request shall be as detailed as possible and be submitted to the Battelle Technical Contact and Subcontracting Contact by COB on Monday, September 13, 2010. The technical support subcontractor will be notified of their selection in a timely fashion and contracting and procurement will begin at that time.

### **PERIOD OF PERFORMANCE**

The period of performance for the technical support effort included under this SOW is anticipated to start in October 2010, and extend for 9 months until June 2011.

### **BILLING SCHEDULE**

The technical support subcontractor should plan to bill Battelle on a monthly basis commensurate with the percentage of work completed.